cently[1] he has presented a list of twenty-one changes that he claims would be necessary.

It is well known to all that the first species and elimination methods are only used as methods of last resort; and cases where the author in the original publication has indicated a type do not come under the operation of either method. Four of Dr. Allen's alleged changes may thus be cancelled at once.

Spinus Koch, 1816, type *Fringilla spinus* L. by tautonomy.

Zonotrichia Swainson, 1831, types '*leucophrys, pennsylvanica, melodia*' designated by the author. We are bound to pick our type from these three 'typical' species and by either method *leucophrys* is the type and no change is required.

Poœcetes depends upon the last and falls with it.

Cyanurus Swains., 1831, is similarly restricted by the author to tropical species.

Colymbus Linn., 1758, does not come under the first species rule.

Erionetta Coues, 1884, is a monotypic genus and how it can become nameless by the operation of the first species rule I can not conceive. What does happen is that it is replaced by *Somateria,* the type of the latter being *Anas borealis* not by first species rule but because it is the only species definitely quoted.

One other case, *Aix,* I included among those in which the type shifted to a congeneric species, the A.O.U. committee having voted not to divide the genus *Aix.*

Removing these seven cases from Dr. Allen's list we have left fourteen, exactly the number I gave.

In my paper I claimed that fifteen changes would result from consistent elimination. Dr. Allen claims but three changes. I can not of course comment upon his results until the details of his eliminations are published.

In the eliminations of vulturine genera that he has published I called attention to several inconsistencies. One of these he now admits and changes the type of *Sarcorhamphus* from *auricularis* to *gryphus.* In his republication of the *Vultur* case, however, he makes another slip, forgetting that since *gryphus* is now the type of *Sarcorhamphus,* 1806, it must be removed from *Vultur* at that date, leaving *harpyia* or *papa* as the type of *Vultur,* the choice being a nice question of priority.

Sarcorhamphus thus replaces *Vultur* of Dr. Allen's scheme and *Vultur* will replace either *Harpyia* or *Gypagus.*

There seems to be only one alternative, *i. e.,* to remove *gryphus* at the date it became the type of *Sarcorhamphus.* If we do this, however, we must do the same with the other genera: *Aura* will go out at 1816, and *papa* at 1854, the latter being thus the type of *Vultur.*

This is an excellent illustration of the complexity of the elimination method and the opportunities it offers even to experts to fall into errors.

Dr. Allen's comments upon the points of my recent paper do not cause me to alter my statements and further discussion along those lines seems useless. The consideration of Linnæan names and priority of Swainson's papers are quite apart from the main issue.

WITMER STONE

ACADEMY NATURAL SCIENCES,
PHILADELPHIA, April 6

[1] SCIENCE, XXV., p. 552, April 5, 1907.

LACK OF RECUPERATIVE POWER OF ITALIAN WORKMEN

TO THE EDITOR OF SCIENCE: On reading Dr. Meltzer's most interesting paper in SCIENCE for March 29 I was reminded of a remark made to me some four or five years ago in regard to the lack of power of Italian workmen, in Italy, to recover from injuries. My informant had for many years been in charge, as foreman, of large numbers of Italian machinists and laborers (and of some English ones as well) in the Armstrong gun carriage and repair shops at Pozzuoli. In reviewing his impressions of the operatives he said that they were able to do fair days' work but that they were likely to be long ill or even to die from injuries that would not prove serious to an English workman. This he attributed wholly to the less substantial diet of the Italian. It is a noteworthy fact in this connection that the poorest Neapolitans set the subsistence limit at six *soldi, i. e.,* six cents,

per day. Meat is rarely eaten by any but well-to-do Neapolitans and the main sources of proteids are bread, spaghetti and beans (*Phaseolus*). It seems to me that in the lack of recuperative power shown by the Neapolitan workmen there is an excellent example of the danger of minimizing the reserve fund of proteids in the system, as suggested by Dr. Meltzer.

Joseph Y. Bergen

Cambridge, Mass.,
April 12, 1907

SPECIAL ARTICLES

GEOLOGY OF THE SIERRA ALMOLOYA, WITH NOTES ON THE TECTONIC HISTORY OF THE MEXICAN PLATEAU[1]

The Sierra Almoloya is situated in the southern part of the state of Chihuahua, about 25 miles west of Jimenez, and midway between the latter town and Parral.

This sierra is one of the numerous isolated mountain blocks of northern Mexico, like Santa Rosalia, Naica, Santa Eulalia and others, which rise in solitude from the vast area of surrounding arid plains constituting the great Chihuahua province, between eastern and western sierras, of the Mexican Plateau portion of the northern cordilleran region.

The mountain is a long and narrow range, about ten miles in length, extending in a northeast-southwest direction and averaging less than two miles in width. It is surrounded on every side by a lower area of sloping plain which has an altitude of about 5,000 feet at the mountain base. The total altitude of the mountain above the plain is fifteen hundred feet, the peaks rising to an altitude of 6,500 feet above the sea, as far as could be determined by a careful aneroid study. To the south of the range are several conspicuous outliers of lower altitude as shown upon the map.

The range is dominated by a narrow axial summit ridge, following the northeast-southwest trend of the mountains. Numerous narrow tongue-like salients radiate from the ridge to the plain, and separate by deep arroyos cutting back to the ridge ('capturing' it) and their valleys making great cirques, or amphitheaters between the salients.

Arising from the central ridge are several conspicuous summit peaks. The highest of these, attains an altitude of about 6,500 feet.

Like the other limestone mountains of the Chihuahua province, this sierra reveals the ancient wrinkled and folded structure of the plateau prior to when it was buried in vast beds of rhyolitic and andesitic volcanic ejecta which once covered this whole portion of Mexico, and which is still preserved in the western Sierra Madre, and like the other ranges mentioned the mountain represents the resistance and survival of the hardest, in the destructive atmospheric erosion and degradation of a once higher surface of the great western plateau.

The Sierra Almoloya is, therefore, a destructional or decadent form of a mountain, representing a remnant of the former extent of the rock material upward and laterally which fact is not only testified in the degraded shape of the mountain configuration itself, but by the vast quantities of talus and debris in process of forming on its surface and now filling the surrounding deserts.

Every detail of its relief such as its axial direction, the character of its slopes, the course of its lateral arroyos and other features are conformed to the arrangement or structure of the rock material composing the mountain, such as the lines of stratification, faults and folds, etc., to be later described.

The exposed rocks composing the sierra consist almost entirely of limestones of varying degrees of purity constituting the main mass and country rock of the mountain. Secondarily these are mineral ores and exceptional fragments of igneous rocks, the latter not found in place of origin.

The Limestones.—The mountain mass is composed of stratified limestones of the Comanche series of Lower Cretaceous age largely and mostly of the particular formation known as the Edwards limestone.

These limestones originated as sea muds in the form of chalk and chalk marls, accompanied by horizons of siliceous flint nodules,

[1] Read before the Geological Section of the New York Academy of Sciences, April 1, 1907.